

**REMARKS*****Generally***

Claims 11 – 20 are pending. There is a discrepancy between the OA Summary and the OA body regarding which claims are allowed and which are rejected. According to the OA body, Claims 11 – 14, and 16 are rejected; and Claims 15 and 17 – 20 are objected to as being dependent on a rejected base claim, but would be allowable if properly rewritten in independent form. This Reply assumes that the body of the OA is correct.

In rejecting Claims 11 – 14 and 16, OA does not establish a *prima facie* case of unpatentability under 35 U.S.C. §103 for at least the following reasons:

- mischaracterization of U.S. Patent No. 6,477,471 to Hedstrom et al. (“HEDSTROM”) as disclosing *calculating the likelihood that changes to the set of input data are the result of one or more errors*; and
- mischaracterization of HEDSTROM as disclosing the use of *information content*.

***Regarding Response to Arguments.***

The response to earlier arguments directed to withdrawn rejections is not seen as applicable to the new rejections.

*Regarding the Claim Rejections Under 35 U.S.C. § 103*

**Regarding Rejection of Claims 11 – 14, and 16 as Unpatentable Over U.S. Patent No. 4,866,634 to Reboh et al. (“REBOH”) in View of HEDSTROM**

Claims 11 – 14, and 16 include the following limitation:

*... calculating the likelihood that changes to the set of input data are the result of one or more errors ...*

The OA asserts:

Reboh et al ('634) does not explicitly disclose one or more central processing units calculating the likelihood that changes to the set of input data are the result of one or more errors. Hedstrom ('471) discloses one or more central processing units calculating the likelihood that changes to the set of input data are the result of one or more errors; (Figure 5, Column 4, lines 20-38 [estimating the number of defects etc ...])

The referenced section of HEDSTROM discloses (**bold emphasis added**):

Referring to FIG. 5, there is illustrated the defect flow analysis for a software design project which starts with RA as a requirement and proceeds to the second Step PD, which is preliminary design, which proceeds to a detailed design (DD) which then proceeds to actual generation of code (CUT) and then to the fifth step of integration and test (I&T). FIG. 5 indicates the defect data flow model used to estimate the number of escaping defects for a typical software product. Some of the final defects from the requirements (RA) escape through the preliminary design, the detailed design, the coding and integration and test. Likewise some uncorrected defects in the preliminary design (second line) escape and pass on to detailed design, through the coding, and through integration and test. Some defects at the detailed design escape through coding and integration and test. Some coding errors escape through integration and test. Some integration and test errors escape. The total escaped defects per million opportunities is the defects per million opportunities (DPMO) which is converted to the Sigma level.

Figure 5 of HEDSTROM discloses the following steps:

A – D. Enter parameters = {HISTORICAL STAGE CONTAINMENT DATA, ESTIMATED EFFICIENCIES, SLOC ON CURRENT PAGE, GOAL SIGMA VALUES}.

E – G. Calculate {Initial Distribution of Defects Using  $P_{ij}$ , Upper and Lower Bounds for Initial Defects Spread}

F. Copy Down Defects Spread to Actual Locations

G. Calculate the Confidence Intervals.

H. Update Predictions with Actuals.

HEDSTROM discloses the prediction of a range (bounded by a confidence interval) for the **number of defects** escaping various software development stages of a single program based on: goals (estimated efficiencies, goal sigma values), the number of source lines of code (SLOC) in the program, and historical data from **other** programs. HEDSTROM does not look at **changes** within the program under consideration at all when estimating the number of defects. HEDSTROM merely distributes such defects among program stages based on historical data from other programs. Therefore HEDSTROM **can not** determine whether any changes in the program under consideration are the result of errors.

Stated another way (and assuming, for the sake of argument, that HEDSTROM's confidence intervals represent "likelihood" as claimed in the application), HEDSTROM's "likelihood" is not a likelihood that **changes** in the source lines of code of a program are the result of errors. HEDSTROM's "likelihood" is that a given segment of code contains between <confidence interval lower bound> and <confidence interval upper bound> number of errors, based on the number of errors found in **other** segments of code from **other**, historical, programs.

Finally, the OA merely cites, without applying, a paragraph and figure of HEDSTROM. Mere citation of a portion of a reference, without an application of the reference to the claims of the application, is not sufficient to establish a *prima facie* case of unpatentability. This is especially true where, as here, the reference does not explicitly disclose the limitation of the claims.

**Further Regarding Rejection of Claim 16 as Unpatentable Over REBOH in View of HEDSTROM**

Claims 16 further limits Claim 11 by adding (**bold emphasis added**):

*wherein calculating the likelihood that changes to the set of input data are the result of one or more errors comprises:*

*(i) calculating the **information content** of the data;*

*(ii) performing a statistical analysis of the **calculated information content** relative to one or more historical values to determine the likelihood that changes to the input data are the result of one or more errors.*

The OA asserts:

Reboh et al ('634) does not explicitly <repeats the limitations introduced in Claim 16> . (Figure 1)

Assuming that "(Figure 1) " refers to HEDSTROM, it is very clear that neither HEDSTROM Figure 1, nor any other portion of HEDSTROM discloses the use of **information content** as that term is used in the application.

The application discloses "information content" and its relation to entropy, at e.g., P07 L02-15 as follows:

*In the late 1940s, Claude Shannon ... made a monumental discovery---the connection between physical entropy and information entropy. Shannon understood that the amount of "information" in a message is its entropy. Entropy is exactly the amount of information measured in bits needed to send a message over the telephone wire or, for that matter, any other channel including the depths of space. At maximum entropy, a message is totally incomprehensible, being random gibberish, containing no useful information.*

*The present invention uses a method we call Content Analysis to determine if changes in financial information are likely the result of errors. Content Analysis uses the Shannon measure of **information content**; however, instead of working with messages, Content Analysis works with financial information.*

HEDSTROM Figure 1, discloses at C02 L47:

... a conversion chart of DPMO to SIGMA

“DPMO” means “defects per million opportunities.” “SIGMA” is a measure of ... It should be apparent that HEDSTROM Figure 1 does not disclose the use of information content.

Should “(Figure 1)” not refer to HEDSTROM, then the OA clearly does not establish a *prima facie* case of unpatentability with regard to Claim 16.

Finally, as before, the OA merely cites a portion of HEDSTROM. Mere citation of a portion of a reference, without an application of the reference to the claims of the application, is not sufficient to establish a *prima facie* case of unpatentability. This is especially true where, as here, the reference does not explicitly disclose the limitation of the claims.

**Regarding Rejection of Claims 12 and 13 as Unpatentable Over REBOH in View of U.S. Patent No. 5,930,762 to Masch (“MASCH”)**

Claims 12 and 13 are dependent on Claim 11. For both Claim 12 and 13, the OA asserts:

Reboh et al. ('634) discloses the system of Claim 11.

Reboh et al. does not explicitly disclose <claim limitations found in Claim 12 and 13>. Masch ('762) discloses <the claim limitations not found in REBOH>.

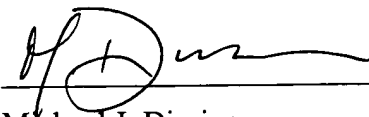
The OA earlier acknowledges that REBOH does not disclose all the limitations of Claim 11. The OA then relies on HEDSTROM to find these limitations. Since HEDSTROM does not support the rejection of Claim 11, Claims 12 and 13 are allowable as dependent on an allowable claim.

## CONCLUSION

With consideration of the above remarks directed to rejections, the undersigned submits that this application is in condition for allowance, and such disposition is earnestly solicited. If the Examiner believes that the prosecution might be advanced by discussing the application with the undersigned, in person or over the telephone, we would welcome the opportunity to do so.

Respectfully submitted,

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